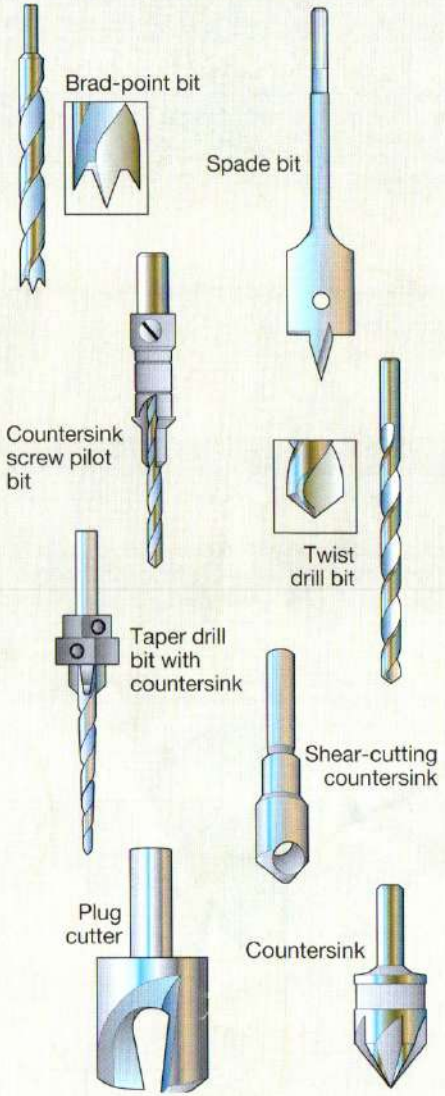
WOOD® Magazine

Shop-Tested Drill Press Speed & Screw Charts

A wall chart from WOOD Magazine to shave time and effort off your woodworking projects.

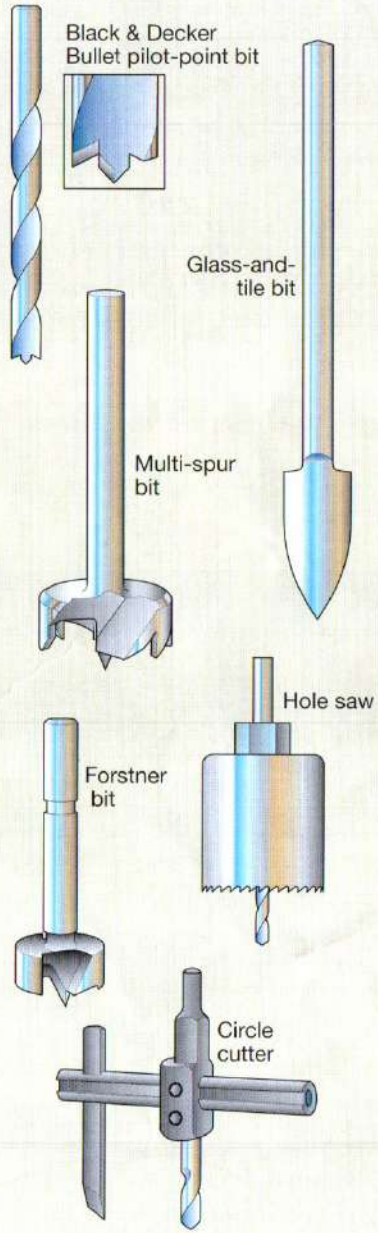


Recommended operating speeds (RPM)							
Accessory	**Softwood (Pine)**	**Hardwood (Hard Maple)**	**Acrylic**	**Brass**	**Aluminum**	**Steel**	**Shop Notes**
Twist drill bits*							
1/16" – 3/16" 1/4" – 3/8" 7/16" – 5/8" 11/16" – 1"	3000 3000 1500 750	3000 1500 750 500	2500 2000 1500 NR	3000 1200 750 400	3000 2500 1500 1000	3000 1000 600 350	Lubricate drill with oil when cutting steel 1/4" or thicker. Use center punch on all holes to prevent drill from wandering.
Black & Decker Bullet pilot-point bits*							
1/8" – 3/16" 1/4" – 3/8" 1/2"	3000 3000 3000	3000 3000 1500	3000 2400 1600	2000 1500 1500	1500 1000 750	3000 2000 1200	Good all-around bit. These cut more quickly than brad points and twist drills.
Brad-point bits*							
1/8" 1/4" 3/8" 1/2" 5/8" 3/4" 7/8" 1"	1800 1800 1800 1800 1800 1400 1200 1000	1200 1000 750 750 500 250 250 250	1500 1500 1500 1000 750 750 500 250	NR NR NR NR NR NR NR NR	NR NR NR NR NR NR NR NR	NR NR NR NR NR NR NR NR	Raise 1/4" and smaller bits often to clear shavings and prevent heat build-up.
Forstner bits							
1/4" – 3/8" 1/2" – 5/8" 3/4" – 1" 1 1/8" – 1 1/4" 1 3/8" – 2"	2400 2400 1500 1000 500	700 500 500 250 250	NR 250 250 250 NR	NR NR NR NR NR	NR NR NR NR NR	NR NR NR NR NR	Raise 1/4–3/8" bits often to clear shavings and prevent heat build-up. Make several shallow passes with larger bits; allow bit to cool between passes.
Glass-and-tile bits (Listed speeds are for glass and tile—not softwood.)							
1/8" 3/16" 1/4" 5/16" 3/8" 1/2"	750 600 500 400 350 200	NR NR NR NR NR NR	NR NR NR NR NR NR	NR NR NR NR NR NR	NR NR NR NR NR NR	NR NR NR NR NR NR	Wear safety goggles. Use drill press only. Do not apply excessive pressure. Lubricate with water while drilling. Reduce quill pressure when bit tip emerges from back side.
Hole saws*							
1" – 1 1/2" 1 5/8" – 2" 2 1/8" – 2 1/2"	500 500 250-500	350 250 NR	NR NR NR	250 150 150	250 250 250	NR NR NR	Do not use with brass or aluminum thicker than 1/16". Avoid dense hardwoods such as hard maple.
Multi-spur bits*							
2 1/8" – 4"	250	250	NR	NR	NR	NR	Smaller sizes also available; use Forstner speeds.
Spade bits*							
1/4" – 1/2" 5/8" – 1" 1 1/8" – 1 1/2"	2000 1750 1500	1500 1500 1000	NR NR NR	NR NR NR	NR NR NR	NR NR NR	Clamp work to table to improve quality of hole.
Circle cutters*							
1 1/2" – 3" 3 1/4" – 8"	500 250	250 250	250 250	NR NR	NR NR	NR NR	Drill one side, flip material over, place center bit in its hole, and resume cut.
Shear-cutting countersinks							
1/4" – 3/8"	1000 750	1000 700	700 700	700-1000 250-700	700-1000 250-700	NR NR	Cuts cleaner than traditional countersinks.
Countersinks							
2-flute 5-flute	1400 1000	1400 750	NR 750	NR 250	NR 250	NR 250	Raise and lower frequently for quicker cutting.
Countersink screw pilot bits							
All sizes	1500	1000	500	500	NR	NR	Clear twist drill often.
Taper drill bits with countersinks							
All sizes	500	250	250	NR	NR	NR	Clear bit often to prevent heat build-up.
Plug cutters	1000	500	NR	NR	NR	NR	Cut to full depth so bit chamfers plug.

NR – Not recommended *Back material to prevent chip-out. **Always wear a face shield for optimum protection.**

Notes

- Recommendations are based on visual and tactile tests under shop conditions. Drilling faster than recommended can cause overheating. Speeds slower than those recommended may cause poor-quality holes.
- All testing done on face grain. Reduce speed when drilling into end grain.
- Speeds based on new bits from the factory.



WOOD

TRADITIONAL WOOD SCREWS
(Actual Sizes)

Gauge	2	3	4	5	6	7	8	9	10	12	14
Head-Bore Size	11/64"	13/64"	15/64"	1/4"	9/32"	5/16"	11/32"	23/64"	25/64"	7/16"	1/2"
Shank-Hole Size	3/32"	7/64"	7/64"	1/8"	9/64"	5/32"	5/32"	11/64"	3/16"	7/32"	1/4"
Pilot-Hole Size – Hardwood	1/16"	1/16"	5/64"	5/64"	3/32"	7/64"	7/64"	1/8"	1/8"	9/64"	5/32"
Pilot-Hole Size – Softwood	1/16"	1/16"	1/16"	1/16"	5/64"	3/32"	3/32"	7/64"	7/64"	1/8"	9/64"
Phillips-Head Point Size	#1				#2					#3	
Square-Drive Bit Size	#0			#1				#2		#3	

PRODUCTION SCREWS
(Actual Sizes)

	4	6	8	10	12	14
Head-Bore Size	7/32"	17/64"	11/32"	23/64"	7/16"	1/2"
Shank-Hole Size	Shank hole is the same size as the pilot hole listed below					
Pilot-Hole Size – Hardwood	5/64"	7/64"	1/8"	9/64"	5/32"	3/16"
Pilot-Hole Size – Softwood	1/16"	3/32"	7/64"	1/8"	9/64"	5/32"
Phillips-Head Point Size	#1		#2		#3	
Square-Drive Bit Size	#0	#1	#2		#3	

Available Lengths: 1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8", 1 3/4", 2", 2 1/4", 2 1/2", 2 3/4", 3", 3 1/4", 3 1/2", 3 3/4", 4"

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